

Date: Fri, 18 Mar 94 04:30:36 PST  
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>  
Errors-To: Ham-Space-Errors@UCSD.Edu  
Reply-To: Ham-Space@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Space Digest V94 #61  
To: Ham-Space

Ham-Space Digest                      Fri, 18 Mar 94                      Volume 94 : Issue    61

Today's Topics:

                    AFC , Doppler, Trakbox and IC475H  
                    STS-62 Orbital State Vectors Rev #197  
                    Two-Line Orbital Element Set: Space Shuttle (2 msgs)

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>  
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.  
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Date: Thu, 17 Mar 1994 05:32:07 GMT  
From: netcomsv!netcom.com!wroth@decwrl.dec.com  
Subject: AFC , Doppler, Trakbox and IC475H  
To: ham-space@ucsd.edu

David Seeler (seeler@UPEI.CA) wrote:

: It is my understanding that the G3RUH modem and the TAPR PSK modem have an  
: interface circuit in order to correct for doppler shift using the MIC up/  
: down pin in the ICOM radios.

: I have not yet seen any interfaces that can be used with the DSP2232 or the  
: TAPR Trakbox - both of which have a separate outputs for MIC UP and MIC DOWN  
: frequency control. Since there is only the one mic up/dn pin in the IC 275,  
: 475 etc I was wondering if anyone is aware of an interface circuit in order  
: to place two outputs ( from the DSP 2232 or Trakbox) into the MIC PIN 3  
: input. Comments, suggestions as to methods used by other modems or designs  
: would be greatly appreciated as well as I would like to observe the  
: difference on AO-16 using MIC stepping rather than through CAT control of  
: the IC475.

I have a IC475/275 combination that I've been driving serially to work the PSK birds. I used the TSR orbitdrv that comes with instanttrack, and the program RadioDRV by NZ3F (public domain source code) for tuning. I designed my own hardware for tracking, and created inputs for the mike click outputs of my DSP-12. When I sensed a mike clock pulse, I subtracted 50 Hz (or added 50 Hz) to the "base" frequency of the bird. This worked very well. If you lost the signal, the doppler shift calculated by orbitdrv/radiodrv would keep you in the ballpark, and if the bird came back and was slightly off, the mike clicks would tend to get you back on freq.

The Kansas city tracker board by LL grace was modified by N6KK to do the same thing. His code is public domain, at least the compiled version is.

The trakbox code was written by Sueo, JA6FTL. Frank KB2MVN and I have been working with Sueo to add the same capability to the trakbox. It's now in place and working well according to Frank. If you need the code, I have the latest version rom on disk. Let me know. Of course you need a Trakbox.

Now the simple answer last...

To actuate the up/down on an Icom, I think you alternately pull the proper mike jack pin to +5 or ground, via a 100 ohm resistor. I've searched for more specific info, but I moved recently and most of my stuff is in storage. Take a look at the schematic for your microphone, and see if they are grounding the pin, or pulling it up. Also see if one button uses a resistor to pull it up/down, and the other doesn't. Sorry I can't be more specific, but I've never done it.

Good luck,  
Wayne WA2N/5

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wroth@netcom.com

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Date: Thu, 17 Mar 1994 01:09:03 GMT  
From: ihnp4.ucsd.edu!agate!library.ucla.edu!csulb.edu!csus.edu!netcom.com!  
astroman@network.ucsd.edu  
Subject: STS-62 Orbital State Vectors Rev #197  
To: ham-space@ucsd.edu

Vector format = 7  
Satellite Name: STS-62  
Catalog Number: 23025 94015A  
Epoch Date/Time: 94075.87564609954

```

                                03/16/1994  21:00:55.823  UTC
ECI X:                          4674.088317  km
   Y:                          -4010.028300  km
   Z:                          2345.249000  km
  Xdot:                        5.410363204  km/s
  Ydot:                        3.890003476  km/s
  Zdot:                        -4.033196000  km/s
ndot/2 (drag):                  0.00018486000  rev/day^2
nddt/6:                         5.68830E-06  rev/day^3
Bstar:                         1.06740E-05  1/Earth Radii
Elset #:                         28
Rev @ Epoch:                    197.40296291714

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MSDOS/PC software is available for conversion of  
 OSV to 2 Line Keplerian Elements via ftp to:  
 oak.oakland.edu:/pub/msdos/hamradio/v2l9331.zip  
 and the SIMTEL archives.

State Vectors courtesy Ken Ernandes N2WWD

SM

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Date: Thu, 17 Mar 1994 01:24:40 GMT
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!
     europa.eng.gtefsd.com!news.umbc.edu!haven.umd.edu!cs.umd.edu!zombie.ncsc.mil!
     blackbird.afit.af.mil!tkelso@network.ucsd.edu
Subject: Two-Line Orbital Element Set:  Space Shuttle
To: ham-space@ucsd.edu

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The most current orbital elements from the NORAD two-line element sets are carried on the Celestial BBS, (513) \*253-9767\*, and are updated daily (when possible). Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current elements for the current shuttle mission are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, 2400, 4800, or 9600 bps using 8 data bits, 1 stop bit, no parity.

Element sets (also updated daily), shuttle elements, and some documentation and software are also available via anonymous ftp from archive.afit.af.mil (129.92.1.66) in the directory pub/space.

```

STS 62
1 23025U 94015A   94074.91666667 .00005614  54879-5 10182-4 0   320
2 23025  39.0148 173.9532 0007069 270.2437  62.7646 16.04910434 1808
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Dr TS Kelso

Assistant Professor of Space Operations

tkelso@afit.af.mil

Air Force Institute of Technology

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Date: Wed, 16 Mar 1994 18:24:56 MST  
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!  
alberta!ve6mgs!usenet@network.ucsd.edu  
Subject: Two-Line Orbital Element Set: Space Shuttle  
To: ham-space@ucsd.edu

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STS 62

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2 23025 39.0148 173.9532 0007069 270.2437 62.7646 16.04910434 1808

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Dr TS Kelso  
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Air Force Institute of Technology

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Date: Thu, 17 Mar 1994 04:04:12 GMT  
From: ihnp4.ucsd.edu!swrinde!emory!wa4mei!ke4zv!gary@network.ucsd.edu  
To: ham-space@ucsd.edu

References <1994Mar15.142846.7980@ke4zv.atl.ga.us>, <2m4mvc\$gke@ornews.intel.com>, <2m5rnc\$9l9@ornews.intel.com>  
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)  
Subject : Re: Antennas

In article <2m5rnc\$9l9@ornews.intel.com> zardoz@ornews.intel.com (Jim Garver) writes:

>

>I bought a KLM14C antenna at a swapmeet for \$40 which needed lots of  
>relay and connection work. I fixed it and it works okay but it seems  
>to have strong side lobes sorta like a cloverleaf pattern.

Then you have the phasing harness wrong.

>I found an article in the Handbook where some guy made a little plastic  
>house for his KLM relay and he describes a temperature pumping that  
>eventually fills the relay full of water.

Yep, never try to seal an outdoor box. Instead put drain holes in  
the bottom.

>I called KLM and the fella  
>told me that the next best relay would cost over \$100. Sure.

Yep, the next best relay setup is a Transco, and they aren't cheap.

>They  
>want \$36 for the newer style relay with integral harness. I think I'll  
>build my own. I also asked about converting to 22C and he basically  
>said forget it. Then I asked about 2 14C's vs. 1 22C and he still  
>tried to sell me a 22C even though he admitted that 2 14C's has more  
>gain.

There's no way you're going to get a clean circular pattern with 2  
14Cs. (Think about the geometry.) The 22C will work \*much\* better.

>I asked about the impedance of the folded element and the balun  
>and phasing coax. 200 ohms for the loops and all cables are 50 ohms.  
>No wonder I get a 1.5:1 SWR. The customer service was good however.  
>I mean they did bother to talk to me.

With the proper length cables, you'll have 100 ohms at the output  
of each cable (the cables act as transmission line transformers).  
When you parallel the two cables at the relay, viola, 50 ohms. If  
you're getting 1.5:1, the harness is screwed up. Take them up on  
the new relay and harness, yours is hosed.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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End of Ham-Space Digest V94 #61

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